BECK (C.)

On Surgical Diseases of the Neck,

Including the First Annual Report of the Special Department of Surgical Diseases of the Neck at the German Poliklinik of the City of New York.

BY

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ON SURGICAL DISEASES OF THE NECK,

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THE SPECIAL DEPARTMENT OF SURGICAL DISEASES OF THE NECK
AT THE GERMAN POLIKLINIK OF THE CITY OF NEW YORK.

By CARL BECK, M.D.

At first sight it may appear rather unnecessary or even odd to have created a new specialty as indicated above, but a closer contemplation of the subject will produce a great many points in its favor.

The field of surgery has, thanks to the great inventions of the last two decades, become so broad that there is no brain imaginable which could master all the details of general surgery. Therefore it appears not more than natural that there are specialists for orthopædic, for abdominal, as well as for genito-urinary surgery. Since the last few years specialties even for surgical diseases of the face and mouth, for cancer, for hernia, and, last but not least, for diseases of the rectum have been created.

I see no reason why the neck should not be entitled to rank with the latter organ, for instance, as far as importance and scientific interest are concerned. The one fact is indisputable, that among all regions of the body it shows, in spite of its small extent, the greatest number and variety of all kinds of tumors.

As by chance it was my good fortune during a period of nine years to observe a more than usual number of surgical diseases of the neck at the German Poliklinik, I frequently had the opportunity to witness capital errors on the part of distinguished members of the profession in reference to diagnosis as well as to treatment.

Thus, for instance, last year not fewer than five so called cold abscesses were sent to me by prominent physicians with the diagnosis lymphosarcoma and fibroma; undoubtedly the slow growth, and particularly the hard consistence of the deep-seated collection of pus, had produced the idea of a solid tumor.

How remarkably the views of the faculty differ could, by the way, be observed recently in a controversy between two distinguished members of the profession which for nearly the whole month of March filled the space of the *Medical Record.*

One of the gentlemen, a laryngologist, published an interesting case in which the patient had died, as he supposed, from infectious pharyngitis. The other gentleman, a surgeon, maintains that the patient's disease was angina Ludovici, and that probably by early incisions he would have been cured.

I do not hesitate to confess that I, especially before having enjoyed the chances of the special department, frequently had to correct my initial diagnosis after having observed similar cases more closely.

The importance of the organs alone, the complicated anatomical condition, the great danger of the bold as well as the elegant operations which can be performed on the neck, could already justify a special position for surgical diseases of the neck, which, ever since surgery existed, had been its *pièce de résistance.*

But the diagnosis seeming to me paramount, it became

clear to me that only a careful and constant clinical study, which can not be obtained except from a multitude of patients afflicted alike, can grant that amount of experience which is demanded for clear indications for treatment.

Without undervaluing the various ingenious modern apparatuses for diagnostic purposes, particularly the microscope, I dare say that especially at an early stage of serious diseases—*i. e.*, at a period when not only the best but very often the only chances for a cure are offered—the clinical experience alone, as a rule, furnishes the guide for interference.

The sad and well-known case of Emperor Frederick of Germany may illustrate this somewhat, as some of the greatest authorities alive disagreed remarkably in regard to the character of the tumor of his larynx.

It is or was generally believed that it was cancerous, but that there was a strong suspicion for syphilis was evident by the fact that for a long time the unfortunate distinguished patient had been treated with inunctions of mercury and was fed with large doses of iodide of potassium, and only when no decrease of the swollen glands of the neck could be obtained specific treatment was abstained from.

Be it well remembered, too, that at an early stage of the fatal disease, when a piece of the tumor was removed for microscopic examination, no less a man than Rudolf Virchow found no evidence of either syphilis or carcinoma, but a simple *verruca.*

It is superfluous to say that a different opinion in reference to the character of the disease corresponds with a different therapy—so different, in fact, that the life may depend upon it.

As mentioned already, the neck, the narrow joining link between the head and trunk—or, as Hyrtl calls it, the pedicle of the head—is distinguished by the great number

and variety of all kinds of tumors, so that there is scarcely a species in existence which can not be found in this little space.

Besides sarcoma, carcinoma, syphilis, gummata or glands, and tuberculosis, I should like to mention the hyperplastic, the leucæmic, and the malignant lymphoma, lymphangeioma, lymphosarcoma, fibrosarcoma, fibroma, enchondroma, osteoma, steatoma, neuroma, lipoma, struma, myxoma, atheroma, aneurysm, simple angeioma, and the monolocular and multilocular cyst—that is, cystic tumor of the visceral arches: air cyst, serous cyst (hydrocele colli), deep-seated dermatoid cyst, blood cyst (hæmatocele colli), synovial cyst (hygroma of the thyreoid region), echinococcus colli; furthermore, tumors produced by leucæmia or pseudoleucæmia.

Among the various kinds of abscesses I may mention the idiopathic ones, the phlegmonous, the previsceral, retrovisceral, retropharyngeal, and retro œsophageal abscesses.

Of great importance are the inflammatory processes following infectious diseases of pharynx and nasopharynx, the spondylitis, the torticollis, the caries, the congenital fistula, and the disfiguring scars following extensive burns.

Regarding the difficulty of differentiation, Lücke (Lücke, Pitha-Billroth, iii. Bd., 1. Abth.) has worked out a scheme by dividing the tumors of the neck in groups according to the various regions.

Inside of each group the tumors are classified in reference to their physical marks, thereby discriminating between cystic, solid, and pulsating tumors.

This very complicated scheme works beautifully so long as it answers only a theoretical want, but is of no practical value.

It seems to me much more advisable, therefore, to make, following Albert (E. Albert, *Lehrbuch der Chirurgie und Operationslehre*, Vienna and Leipsic, 1884), a dis-

tinction between a few possibilities from a clinical standpoint, as it is the custom to do in all other doubtful questions. Furthermore, to pay regard to the general health of the patient.

When a new-born child, for instance, is suffering from a tumor of the neck, this can only be an angeioma cavernosum, or a hygroma, or a congenital struma.

A struma is occupying the region of the thyreoid gland and is in close connection with the trachea, which can easily be recognized by the corresponding upward movement of the growth while swallowing.

An angeioma might establish itself anywhere. Its reddish-blue color, the spongy feeling by touch, the fact that it can not be compressed, and that it swells up while the patient is crying, furnish the evidence of its character.

The congenital hygroma, when starting, has its domicile in the submaxillary region, and is characterized by the multiple cystic cavities of which it consists.

In older children the usual form of tumors is represented by the lymphatic growth—that is, the so-called scrofular lymphoma, a term which, by the way, since the discovery of the tubercular bacillus, has become obsolete, as the majority of these ill-defined lesions, which are grouped under that indefinite and vague word scrofula, have been shown by recent researches to be ætiologically and clinically, as well as anatomically, identical with the recognized forms of tuberculosis.

Among a great number of cases a whole chain of tubercular glands is well marked. The appearance of the children afflicted therewith is what is generally called scrofulous —that is, they look badly nourished and anæmic. One or the other gland might already have broken down, so that there is scarcely any doubt as to the character of the disease.

On the other hand, one simple gland is swollen, the child bears a healthy appearance, and there may be no family history of a tubercular disposition. Then a simple lymphoma is suspected.

If the little tumor is situated in a region where glands normally have to be expected, if it can be easily moved and separated from its surroundings, and if it is of small size, the diagnosis is corroborated.

In adults, struma, malignant lymphoma, and aneurysm, in old age carcinoma of the œsophagus, the thyreoid gland, or of the lymphatic glands, may be suspected.

The anæmic child, the young consumptive and the old, suffering from carcinomatous cachexia, in their general appearance at once have to point our suspicion toward a certain direction.

Besides this general view we have to regard the topography. Hygromas occupy the thyreoid region, echinococcus cysts only the supraclavicular region, especially below the sterno-cleido-mastoid. The visceral-arch cysts establish themselves only at the anterior margin of the sterno-cleido-mastoid.

Besides this, we have to take note of a very striking physical symptom of only a limited number of tumors—*i. e.*, the distinct pulsation.

There it is essential to know whether this pulsation originated from the tumor itself. If this is not the case, a great number of possibilities have to be taken into consideration, as the pulsation of a tumor can be carried to any growth which may be situated above an artery.

If the tumor itself is the seat of the pulsation, then the only differentiation would be between an aneurysm or a pulsating vascular sarcoma.

This sometimes is very difficult if not impossible to determine, as the character of the pulsations in both such

cases is perfectly identical; the shape and situation, besides, might show nothing extraordinary.

Even the consistence may leave a reasonable doubt, as in the various portions of a vascular sarcoma it often may be irregular.

Another important point may be where there is a difference in the pulse of the afflicted and of the healthy side. This may indicate an aneurysm.

Furthermore, an aneurysm grows slowly, while a sarcoma, as a rule, increases more rapidly. Besides, if thoroughly observed, pulsation may have been noticed already at a time when the tumor is still of small circumference, and then the aneurysm from its start may have shown a soft consistence, while the sarcoma is hard and resistant.

Many more doubts are possible in tumors the contents of which are liquid. Take the case of a well-defined fluctuating tumor of peanut size at the anterior margin of the sterno-cleido-mastoid. It may be what is termed a cold lymphadenitic abscess just as well as a visceral-arch cyst or a thyreoid, or a blood or an echinococcus cyst. To make a diagnosis in this case we, in the first place, have to decide if the tumor ascends or descends synchronously with swallowing.

Second, we have to find if it is adherent to the thyreoid gland. If this is so, it is a thyreoid cyst; if not, we have to examine if a part of the tumor can be partially emptied. If this can be done, a blood cyst is probable; if not, its mobility comes in play. In case the base of the tumor is movable, we probably have to deal with a lymphoma with softened contents; but in case the mobility is doubtful, it may be an echinococcus or visceral-arch cyst.

The differentiation between these two conditions can only be made from the history, as the latter presents itself

only during puberty, while the echinococcus occurs at any period of life.

An aspirated blood cyst naturally yields blood, while a visceral-arch cyst yields a pappy mass.

These few examples may suffice to show the difficulties of differentiation, these being, as a rule, of much more importance, so far as the patient's life is concerned, than the operations, in reference to which some special principles unlike those governing the surgeon on other regions of the body have to be observed.

I will not speak of such masterly proceeding as the ligation of the innominata, which will forever immortalize the name of Valentine Mott.

But I may lay stress upon some points like the necessity to perform operations on the neck with blunt instruments. It is remarkable how rarely I cut a large vessel unexpectedly since I have adopted this principle. The most valuable instrument for this purpose is the blunt-pointed scissors, curved on the flat (so-called Cooper's), which, when closed, adapt themselves to the convexity of the tumor.

Large and deeply situated tumors naturally cause great difficulties in operations. Here it is of great importance to make extensive incisions, always exceeding the limits of the tumor on each side.

A vertical cut alone generally does not suffice, wherefore it always is wise to make a cross incision besides right at the beginning of the operation. Often I have found it useful to add a so-called trap-door cut.

I have never tried to ligate the large vessels methodically before the extirpation of a tumor, as advised by Langenbeck, but by proceeding bluntly I was always able to catch the vessels between two forceps before they were cut through. It is practical to ligate the vessels first in the

centripetal direction and after this on the opposite side of the tumor. This procedure is especially useful if the tumor has been growing around the vessels. Deep down, where the usual forceps makes it quite troublesome sometimes to apply the ligature, my own artery clamp—which, on account of its rectangular shape, makes sliding over easy—has done me considerable service.

During extirpation the tumor should be only slightly pulled, as strong traction might empty large veins, so that they might be taken for connective tissue and incised. A less experienced surgeon may then be astonished about the large amount of bleeding following relaxation. Besides the danger of bleeding, the patient should never be exposed to the great risk of the entrance of air into the vessel. By relaxing the growth every time before doubtful tissues are incised, this undoubtedly frequent occurrence can be avoided.

I have always succeeded in extirpating atheromata of the neck, if movable, by my own method, which in short I may describe once more on this occasion (cf. *N. Y. medicinische Monatsschrift*, December, 1886). With a sharp-pointed bistoury I make a small cut anywhere into the skin covering the tumor, and just large enough to allow a probe or small blunt curved scissors to pass through. (A strong probe is to be preferred.)

After having loosened the sac with the instrument from its adhesions thoroughly, I open the cyst, introduce a small Péan forceps, seize the sac somewhere, and pull slowly. At the same time I am squeezing the contents out as the placenta is expressed from the uterus in Credé's method. Thus by exercising patience I can remove the largest sac in the same manner as a large ovarian cyst is withdrawn through a small abdominal opening, after having it emptied or otherwise diminished its size in the abdominal cavity.

After the removal the cavity is irrigated with a one-promille bichloride solution and a light dressing is applied.

The greatest advantage I allege for this my method is, that it leaves no scar, a circumstance which for cosmetic reasons is probably more appreciated by the fair sex. (It is evident that the same procedure can be employed for atheromas of the face.)

Besides the method described, it makes sewing unnecessary, it causes nearly no bleeding at all, and grants recovery after two or three days as a rule.

Where thick adhesions are present it naturally is impossible to separate them with a blunt instrument, and then they have to be shelled out like other small movable tumors such as lymphomas. Here the tumor is seized and pushed against the integument. An incision is made down to the sheaths of the gland and the blunt scissors finish the separation.

The prototype of such tumors is the hyperplastic lymphoma, or lymphoma as it is ordinarily called, and which consists in a hypertrophy of the gland. It either has a soft consistence if the cellular elements are hypertrophic, or a hard one if the reticular tissue between has proliferated.

In most cases a peripherical irritation can be found as their source of origin.

Inflammatory processes, ulceration, dermatitis, or eczema occasionally make neighboring glands swell.

At our department we have observed a typical cause for swollen glands which we have named "dirt inflammation." Those immigrants coming from barbarous districts and who regard even an annual wash to be an exorbitant and foolish luxury, carry Mother Earth in the most various shapes on all such surfaces of the body which are not covered by clothing. When they are scratching themselves—sometimes for

very good reasons—they "*lege artis*" inoculate themselves with their antique and well-preserved filth.

As shown below, four cases of lymphadenitis had been undoubtedly due to the presence of the invasion of an army of "pediculi capitis," which was fought successfully by anointing the skull with blue mass. It was remarkable how quickly the size of the glands was reduced after the original cause was removed.

Only in case the irritation should be an internal one suppuration may set in, but generally the hypertrophied glands disappear as soon as the irritating process is healing.

But in a certain number of cases, even after the cause has been removed, the sequelæ in the shape of a lymphoma remain. If not too much time has elapsed, the therapy as described below may still be successful; otherwise extirpation is in order.

If no suppuration exists in or around the glands, I in extirpating them always strive toward union by first intention. If there is any sign of suppuration or even only softening in the center of the gland, I never sew up the wound. With few exceptions, so far as my experience goes, such conditions are apt to produce inflammation even after union by first intention had been obtained already. The scar opens somewhere, new incisions have to be made, scraping has repeatedly to be done, and the process, which under open treatment will have been ended in one or two months, may take even years or end fatally through the retention or the burrowing of pus.

In suppurative processes the existence of tuberculosis has to be borne in mind, this disease being of terrible frequency.

There is indeed no region where tuberculosis can so easily and so exhaustively be studied as on the neck, where-

fore I may be allowed to make some more extended remarks concerning this subject.

Why tubercular glands of the neck are still called lymphadenitis scrofulosa, or scrofulous glands, is a conundrum to me. The time has passed where tuberculosis would only be identified with an ulcerated process in the lungs.

Since Robert Koch made his great discovery it has been shown that there is scarcely a tissue in the body which could not become tubercular. Those diseases which so indefinitely are called scrofula are nothing but tubercular affections. Langenbeck, Volkmann, and Sayre, even before the antiseptic era, showed that there was such a thing as local tuberculosis, or, as it is practically expressed, surgical tuberculosis, and that by thorough resection in numerous cases a cure of these tubercular processes could be effected.

I do not see why the same principle should not be kept up in tubercular disease on the neck. As Whittier says, it may occur that from a caseous nodule, wherein the tubercular virus is locked up in temporary innocence, absorption may take place under favorable circumstances and a new outbreak of tubercular symptoms appear, the quantity of virus thus set free determining to a great extent perhaps the virulence of the symptoms. While the virus is locked up thus the disease would be latent, and when set free manifest itself.

From this recent point of view it is evident that the true tubercular nature of a gland can only be furnished by bacteriological investigations. But this can not be demanded from the general practitioner at all for practical reasons. Therefore, though I do not at all underestimate the great value of the microscope, I recommend for the purpose of determining a character of a doubtful gland a strictly practical method. I inject one hypodermic syringeful of a saturated solution of iodoform ether into the sub-

stance of the gland, and repeat this about every third or fourth day. If after three or four injections the gland has decreased, I am sure that a cheesy process is going on in the center; in other words, that there is a tubercular focus. As soon as I have gained this conviction I immediately proceed to extirpation.

In fact, among a great number of cases treated thus I have always found that after an unsuccessful treatment by the use of iodoform injections the center of the gland was degenerated.

An early extirpation is of the same value as in the treatment of malignant growths. It is nearly certain that if the glands are taken out before the tubercular process has extended beyond the capsule, the neighboring glands, and hereby the whole system, will be prevented from successive infection. Without any exception, all the numerous cases which I have treated by *early* extirpation have been cured.

The time of observation, however, is extending over too short a period to have a clear judgment about the future results, but it is remarkable that all these tubercular patients have quickly improved in every way, and are all in a decidedly normal condition at the present time.

The main reason for having had such splendid results I see not only in making it a rule to make large incisions and to remove all suspicious tissue thoroughly, but especially in the open treatment of the wound. The tissues in which suppurating glands were imbedded have little tendency to union *per primam*, although I do not deny that it can be obtained sometimes.

But it seems to me to be essential that, after the removal, the whole operation field should be washed with an eight-per-cent. solution of chloride of zinc and then packed with iodoform gauze (fifty per cent.).

By uniting the edges of the wound and putting in one or more drainage-tubes we renounce—

1. The peculiar antitubercular influence of the iodoform, which can only be obtained if it remains in close contact with the tissues, as there is no such thing as an effect of iodoform by distance. The gauze which covers the united wound and the outer ends of the drainage tubes only prevents the decomposition of the wound secretion *in the gauze*, but is of no influence upon the process in the wound or cavity itself.

2. We renounce the absorbing qualities of the gauze, which is of great value. If packed, every little bit of the secretion must be absorbed by the gauze, and, no matter how large the cavity is, the pus must be *in the gauze only* and the wound surface must appear dry. Regarding the fact that dryness is the strongest enemy of bacteria, we may herein find some other point of importance. The drainage-tube is not so polite as to pull out the matter, as the public at large are inclined to express themselves. There is no magnetism of any kind in the dressing as to aspirate pus which rather passes a drainage-tube only if the cavity produces it *in abundance;* if, in other words, there is the first step to, or, most frequently, the real cause of a retention of pus.

My experience in former years has taught me sufficiently how much needless work I was doing in always using other antiseptics or other dressings, or in making innumerable scrapings or counter incisions, so that a year's time of treatment was nothing astonishing to me, while since I have adopted these principles the average time has amounted to five weeks. I may add that I have dispensed with irrigation entirely, because the wound surfaces look so dry and healthy that there is nothing left to be washed off.

3. We remove a valuable point of observation in clos-

ing up our operation field. Just as I make large incisions in order to see and not only feel every gland which I want to extirpate, I like to be able to look over the whole field during the after-treatment, thus being enabled to make corrections—for instance, when by mistake I have left diseased tissue.

It sometimes may occur that, shortly after the operation, the surface of the wound may be covered by a thick layer of badly granulating tissue, which shows the characteristics of tubercles. There the repeated use of chloride of zinc and sometimes renewed scraping is indicated. It is further remarkable that even very large incisions heal without as ugly a scar as presumably should be expected, this being probably due to the quickness of the healing process.

The dressings, as a rule, are changed every second day in the beginning; later on, only every third or fourth day.

After the cavity has been packed, a piece of "Neustrelitz sterilized moss" surrounds the entire neck. This moss, besides its excellent absorbing qualities (it soaks five times as much water as any gauze), has the great advantage that, slightly dipped in water (or preferably in a bichloride solution), it adapts the shape of the body, so that it immobilizes like a plaster-of-Paris splint, over which it has the great advantage of being absorptive and of being much lighter.

The results obtained by me are in strong opposition to Fränkels, who maintains that the average time of the healing process in tubercular glands is from three to four years.

Regarding the undeniable fact that in all these cases, sooner or later, pulmonary or diffuse general tuberculosis could necessarily have taken place, I, with all due respect to my colleagues, am unable to conceive that many of them still advise building up the system first, and then do an

extirpation, a view which shows a deep misunderstanding of the pathological cause of tubercular glands.

Internally I have administered Roncegno water in the summer time; pale Norwegian cod liver oil (never the emulsion) during the winter season. When even the slightest disturbance of the stomach was present, I prefer the syrup of the iodide of iron. At the same time every patient was advised to take a salt-water bath (one to five pounds of rock salt to a tubful) every day for years.

Treatment with Koch's tuberculin, as well as with Klebs's tuberculocidin, has repeatedly been tried, but with no satisfactory results.

Report of Cases.—1. Hyperplastic lymphoma, 57 cases (39 males, 18 females).

Among these were six under the age of three years, 24 between three and thirteen years of age, 20 between thirteen and twenty-five years of age, and 7 over twenty-five years of age.

All except 14 had been born or had mostly lived in the plains.

Twenty-six were born and mostly dwelling on the seashore; 14 came from Russia, 12 from Austria, 8 from Germany, 20 from New York city, and 3 from other countries.

Among 26 the glands were located on the left, among 21 on the right, and among 10 on each side. In 7 cases operations had already previously been performed.

In 14 cases the axillary and inguinal glands were enlarged also.

Twice the sterno-cleido mastoid had to be cut through, and was united again after extirpation was completed.

Forty cases were cured by the use of Roncegno water, cod-liver oil, salt-water baths, and the application of iodoform collodium, changing with the green soap, the foam of which had remained over the glands during nighttime.

Fifteen were cured by the injection of iodoform ether. Some glands were injected between twenty and thirty times.

In 2 cases, where I failed to reach the center of the gland through the great nervousness of the patients, iodoform ether was distributed under the skin, where it produced slight gangrene—an occurrence which, through greater care, probably could have been avoided.

All patients complain of great pain caused by the injection. But this usually does not last longer than one or two minutes.

In 2 cases, which were of more than one year's standing already before they underwent treatment at our department, repeated iodoform injections produced decrease of the glands, but could not make them disappear entirely, wherefore I extirpated them.

In 9 of these cases a tubercular history could be made out.

It was of interest that in most of these cases an original cause for the glands could be found. Three cases were depending upon dermatitis; 4 from eczema, 6 from inflammatory and 4 from ulcerative processes; 5 had followed scarlet fever, and 6 diphtheria. In 5 cases adenoid growths of the nasopharyngeal space and in 4 pediculi capitis were found; 8 cases probably were inoculated by dirt. In such cases the use of green soap is of double value. In 12 cases the original cause could not be found.

As far as the ætiology is concerned, the term "scrofula" was found to be practical so far as it covers our own ignorance of many points about the patients.

Suppurating Glands (irritation diagnosticated).—Nineteen cases, among which 6 were dependent from eczema, 5 form dermatitis, 4 from inflammatory and 4 from ulcerative processes (11 males, 8 females).

All of them were cured by incision, scraping, and packing with iodoform gauze.

Among them were 6 children below three, 7 below thirteen, and 6 individuals over thirteen years of age.

Fifteen were born or had always lived on flat land (13 on the seashore), 5 came from Russia, 4 from Austria, 3 from Germany, 6 from New York city, and 1 from Switzerland.

Ten were located on the left, 7 on the right, and 2 on each side. In 4 cases previous operations had been performed. In 4 cases the axillary and inguinal glands were slightly enlarged.

Suppurating Glands (probably tubercular).—One hundred and twenty-four cases (81 males, 43 females). Among them were 44 up to three years of age, 28 between three and thirteen, 24 between thirteen and twenty-five, 17 between twenty-five and fifty, and 11 over fifty.

One hundred and fifteen of them were born and had mostly lived on the flat land.

Only 19 were born or brought up in the mountains, 82 were born and mostly residing on the seashore, 31 were born in Russia, 22 in Austria, 26 in Germany, 39 in the United States (New York city), and 6 in other countries.

Fifty-eight were located on the left, 49 on the right, and 17 on each side.

In 28 cases previous operations had been performed.

In 39 cases the axillary and inguinal glands were enlarged also.

In 29 of these cases where the suppurating process could not be diagnosticated by me beforehand, iodoform-ether injections had repeatedly been made without success before extirpation was done. Five times the sterno-cleido-mastoid had to be cut through, and was always united again after the extirpation was completed. The internal jugular

vein was ligated before separation twice; once the ligation was temporary only.

In 34 cases three or less glands had to be removed, in 55 between three and six, in 23 between six and ten, and in 12 more than ten (in some cases between 30 and 35) glands had to be extirpated.

In 21 cases I had to repeat extirpation by removing neighboring glands, which were not noticeable at the time of the operation, or which had been overlooked by me.

In 63 cases the family history gave me the suspicion of tuberculosis. Seventy-four patients had frequently suffered from bronchitis, pneumonia, pleuritis, and chlorosis.

All the patients showed an anæmic appearance and were generally thin and slimly built. Twenty-nine were rhachitic at the same time; thirty-one suffered from chronic rhinitis. Adults complained of great weakness and loss of appetite as a rule.

The operation was always performed under an anæsthetic. Adults were anæsthetized with ether, children below six years of age with chloroform.

Two patients (see history) died; nineteen are still under treatment and are doing well.

The following few cases may serve as an illustration:

Case I.—Sarah R., sixteen years of age, thin and overgrown, born in Russia, flat land. Parents alive and well. (Elder brother operated on by me in summer, 1892, for caries claviculæ. Recovery.) Menses since her thirteenth year.

Five years ago about eight subauricular suppurating glands had been removed by me. Rubber drainage. Recovery after eleven months. In December, 1891, after having been well ever since the last operation, the glands of the same region became enlarged. Iodoform ether was injected immediately and recovery followed after seven injections; at the same time internal treatment was given.

In January, 1893, she presented herself again, suffering from

an enlarged gland in the same region. Iodoform ether, injected three times, made it disappear.

Case II.—Fred L., nineteen years of age, tall and thin, born in Germany, flat land; family history good. Since five months a slow-growing painless tumor has appeared in the left upper trigonum. Treatment by several gentlemen consisted in iodine preparations externally and internally. Sent to me with the diagnosis of fibroma. Patient looks very anæmic, shows loss of appetite, great weakness. Temperature 101°, pulse 106. The very hard non-movable tumor of goose-egg size yielded pus by aspiration. Vertical incision; scraping and packing. Perfect recovery after two months.

Diagnosis.—Suppurative melting of gland or glands, forming a so-called cold abscess. (Patient is reportetd o be well up to date.)

Case III.—Josef N., seventeen years of age, tall and thin, born in Russia, flat land; six years in the United States; family history good. Three months ago he noticed a small, soft tumor in the right middle of his neck, which grew slowly and without causing any pain. For several months, without any effect, medical treatment by his house physician, who had sent him under the diagnosis hydrocele colli, and had told him that a few *injections* would cure him. Examination at our department, May 3, 1892, revealed a fluctuating tumor of hen's-egg size at the right upper trigonum. A part of the same could be emptied. No mobility was present; but the aspiration yielded pus, wherefore the diagnosis of a cold abscess probably caused by broken-down gland tissue was evident. Scraping and packing within ten weeks cured the patient.

Case IV.—Agathe S., sixty-five years of age, widow; stout; born in Germany, flat land; in New York city for the last thirty years. Family history good. Of her six children, two died early—one from meningitis, another one from pneumonia. She has always been well till nine months ago she noticed a painless tumor in the left supraclavicular region which was growing slowly. Slight pain appeared during the last two months, variously treated before. Sent with the diagnosis carcinoma.

The patient was first seen at our department on April 17,

1892, and looked cachectic. Great debility; temperature, 101°; pulse, 90. The clavicula in its whole length represented the base of a hard tumor of the size of the head of a new-born child, which extended in an elliptic shape up to the angle of the inferior maxilla. Turning the head is very painful; in a quiet state only temporary pains are experienced. No fluctuation. Aspiration on three different points yielded blood. No mobility. Although there were many points in favor of a diagnosis of carcinoma, I suspected tubercular glands for the following reasons:

a. In the case of carcinoma of nine months' standing some neighboring glands ought to have been infiltrated.

b. The surface of the tumor would have been less even.

The operation, started by a trap-door flap incision, showed eleven glands, nine of them in a state of cheesy degeneration. Scraping and packing cured the patient within ten weeks. She has remained well up to date.

Case V.—Elizabeth J., fifty-seven years of age, housewife; small and thin; born in Germany (on the hills); in New York since forty-seven years; family history favorable. Among her four children one had died from bronchitis at an early age. She herself had suffered from pneumonia eleven years ago. Eight months ago she first noticed a small, painless swelling in the middle of her right neck. It increased slowly in size. For the last two months it once in a while felt painful. She had treated herself with linseed poultices until she was told that she was suffering from "cancer," and was sent to our department for removal.

On February 15, 1892, when she first showed up, she looked cachectic. Debility and loss of appetite were present. The trigonum cervicale superius is occupied by a hard tumor of the size of a man's fist. Slight mobility is present. No fluctuation. Turning of head is almost impossible. Temperature, 100·5°; pulse, 94. Aspiration, repeated three times, yields blood. No neighboring glands are affected. The well-defined tumor shows a smooth globular surface.

Diagnosis.—Infiltration caused by tubercular glands.

Removal was quite difficult. After a T-shaped incision was

made, the sterno-cleido-mastoid was cut through and the internal jugular vein ligated before being cut. Open treatment. Perfect recovery after three months. Patient was reported to be well only a few weeks ago.

Case VI.—Anton B., twenty-one years of age; tall and thin; born in Bohemia (flat land); in United States since two years; family history unknown. Since four years suffering from "suppurative glands." He reports that for quite a length of time in Bohemia he was treated with the dried-up fæces of a cow in the shape of a poultice, moistened with lukewarm water. On December 9, 1892, when he first came under our observation, he looked anæmic; was quite weak; temperature, 101°; pulse, 106. The submaxillary glands from one angle of the inferior maxilla to the other were infiltrated, and averaged in size from a bean to a peanut. No less than seventeen fistulæ were spread over the infiltrated region, and, in fact, increased the circumference of the whole neck to such size as if it was surrounded with heavy padding.

Diagnosis.—Tubercular glands of neck, infiltration of connective tissue, retention of pus, and disfiguring scars around the fistulæ.

Incision from one angle of the jaw to the other; excision of all scar tissue; removal of nineteen glands; scraping of several pockets, where undoubtedly glands had previously broken down. Next day temperature, 104·5°; pulse, 130. As retention of pus was suspected, the dressing was changed; nothing extraordinary was found. One day later, as the fever symptoms continued, the dressing was changed again. This time a swelling on the posterior margin of the left sterno cleido-mastoid at its insertion was noticed. An incision revealed a suppurating gland, which, unfortunately, had been overlooked at the operation.

The patient improved rapidly. A month later the whole left side of the neck was closed. Two cavities on the right side were still suppurating, and had been scraped twice more. On January 14th a chill; renewed swelling of four submaxillary glands, which were removed. Rapid improvement and closure of all the cavities followed with the exception of one, which was repeatedly cauterized with an eight-per-cent. solution of

chloride of zinc. Patient is still under treatment, but has gained twenty-four pounds, is strong, has normal temperature and good appetite.

Case VII.—Benjamin K., aged twenty, of medium size and thin; born in Russia, flat land; family history good. Patient has always been well until two years ago, when he started to form a suppurating gland, as he says, right below the left angle of the inferior maxilla. Extirpation was done twice (for the last time at a hospital of this city).

The wound had been sewed up in its entirety the first time. After the second operation it had been drained by a rubber tube. After the first time the edges had sloughed; the second time, eight months ago, a fistula had remained, which secreted yellow pus.

On February 11, 1893, when he first underwent treatment at our department, he looked anæmic, he had a good appetite, was not feeling very bad, and had a normal pulse and temperature.

The operation consisted in the removal of all thick scar tissue and of the hardened bed of a macerated gland, which could be lifted up with a sharp spoon. Packing. Perfect recovery already three weeks after. (Patient recently has shown symptoms of renal calculi.)

Case VIII.—Gussie W., aged five years, tall and thin, very anæmic, born in New York city. Since four months, formation of a painless tumor in the right subauricular region. Treatment expectant by several gentlemen.

On August 10th, when first seen, she showed two confluent soft tumors, the lower one of goose-egg, the upper one of hen's egg size. Fluctuation was well marked, temperature normal, pulse 106. Through a long incision two tablespoonfuls of yellow pus were evacuated; below the pus cavity seven infiltrated glands were removed. The emaciated patient improved rapidly until, four weeks later, she was taken sick with croupous pneumonia. It seemed to me that during the pneumonic process the cavity was closing quicker than before. Perfect recovery from the pneumonia two weeks after its onset. At the same time the closure of the cavity was perfect. The treat-

ment of the cavity had been kept up just the same during the pneumonia. (Has been well up to date.)

Case IX.—William N., aged fourteen years, tall and thin, born and brought up in New York city. Father died from consumption in his thirtieth year. (Only child.) Four years ago he had suffered from pneumonia. About a year ago he noticed at his right supraclavicular region a small, painless tumor, which grew slowly. On April 4, 1892, when first seen, he looked anæmic; complained of great debility and loss of appetite. For the last three weeks the swelling had been painful; temperature, 102°; pulse, 116. On the right side the subauricular, submaxillary, and supraclavicular glands together composed a tumor of the size of a new-born child's head. No fluctuation. On the left side the submaxillary glands were also enlarged.

A T-shaped incision was made on the right side along the posterior margin of the sterno-cleido-mastoid, and fourteen glands, all being in a state of cheesy degeneration, were removed under great difficulties. Underneath the supraclavicular glands an abscess, containing about two tablespoonfuls of yellow pus and extending about an inch below the inferior margin of the clavicle, was opened.

At the same time four degenerated glands, situated at the left supraclavicular region, were removed. The patient was doing well after the operation until, three weeks later, he became feverish and delirious. Repeated vomiting set in, and facial paresis pointed to a cerebral process. Five weeks after the operation, death from meningitis.

Case X.—Amanda K., aged fifteen years, tall and very thin, born and educated in New York city, family history favorable. Her sister, aged six months, suffers from several lymphomas of the neck. Menstruated first in her thirteenth year. She has not felt well for the last year, and has been treated for chlorosis during six months. Several glands, as the patient reports, had been observed at the middle of her neck for years, and had never been treated. Six weeks ago they commenced to swell, and caused considerable, but only temporary, pain. Two weeks ago her family physician made an incision, which was followed

by short relief. Then her general condition became worse, and swellings were observed.

On October 9, 1892, when she was seen for the first time, she appeared very anæmic and weak; temperature, 103°; pulse, 130.

In the left supraclavicular region a hard tumor of goose-egg size. No mobility or fluctuation. In the upper trigonum of the same side was a small opening filled out by a rubber drainage-tube, through which, on pressure, about a teaspoonful of grayish pus could be emptied.

The operation consisted in the extirpation of seven more or less cheesy glands and of some infiltrated tissue, and in scraping the cavity, which had been opened previously.

Great relief and improvement of general condition followed, but four weeks later some supraclavicular glands of the other side commenced to swell; at the same time the temperature, which never had risen above 100°, went up to 103° again. Extirpation was declined. Five weeks after the operation the cough, which had for a year been present to a slight degree, became frequent and vehement. The house physician reported to me later that, two months after my operation, the patient died from phthisis pulmonalis.

Tuberculosis of Glands, Clavicle, and Sternum.—Moses B., aged thirty years, middle sized and very thin, born in Russia, four years in United States (New York city).

For three years he has been suffering from suppurating glands of the whole right region of the neck. Incisions and treatment by poultices were tried in turn.

On February 27, 1892, when he was seen first, he was showing the characteristic appearance of a consumptive.

Temperature, 105·2°; pulse, 118; great debility; loss of appetite; night-sweats.

The submaxillary glands were swollen; on the supraclavicular region, extending from the acromial joint to the opposite left sternal joint of the clavicle, a tumor of the size of a new-born child's head was noticed. In the middle of the right clavicle and on the right sterno-clavicular joint fistulæ secreting serous pus had been established. The probe revealed bare bone

on the posterior surface of the clavicle as well as of the manubrium sterni. Operation consisted in extirpation of four degenerated submaxillary and nine broken-down supraclavicular glands.

A small portion of the clavicle was found to be carious and therefore chiseled away. The posterior surface of the manubrium sterni could only be approached after having dissected the sternohyoid muscles. Now the upper fourth of the sternum could be made out to be denuded of its periosteum. The grayish-looking bone portions were chiseled away and the large cavity packed. Improvement followed. Three weeks later, when the temperature rose to 104°, an abscess below the acromio-clavicular joint was opened.

Patient is doing excellently, although the large cavity above the sternum has not been entirely closed. This case shows the advantage of the gauze very characteristically, as a drainage-tube inserted behind the sternum surely, after simple mathematical laws, could not have driven the discharge upward.

Malignant Lymphoma.—Renata L., aged thirty-one, married; two healthy children; born in Austrian highlands; twenty-one years in United States (New York city); family history good. Two months ago she noticed in the left supraclavicular region a small lump which grew rapidly.

On May 3, 1892, when she first made her appearance, she showed a tumor of goose-egg size right above the clavicle, another one of the same size in the upper trigonum, and a third one before and slightly overlapping larynx and trachea. The patient made a healthy impression, showed normal temperature and pulse, felt strong, and had a good appetite. The axillary as well as the inguinal glands were slightly swollen. As the patient especially declined an operation on account of her good general condition and the entire absence of pain, she was given Roncegno water in doses of six tablespoonfuls *pro die*. The tumors at the same time were injected with three drops of Fowler's solution every other day for three weeks, a procedure which was always followed by considerable pain.

As no decrease in size of the tumors could be obtained, the patient left our department and was later reported to me as having died at the end of September of the same year.

Sarcoma.

Case I. *Lymphosarcoma.*—Mrs. Lizzie F., housewife, aged sixty-five, born in Austria; family history good. Six months ago she noticed a small lump in the right submaxillary region, which since has grown to the size of a goose egg and caused considerable interference in swallowing. On June 17, 1892, when first seen, the tumor filled out the whole space between the processus mastoideus and the os hyoideum and pushed the soft palate forward. In it there existed a cavity of peanut size covered with detritus. No mobility; great weakness. The axillary and inguinal glands were swollen; also some small hard tumors on both forearms were noticed. An operation did not seem to be advisable any more.

Case II.—Christof B., aged sixty one, born in Germany; family history good. Six months ago he noticed a sharp pain in his left arm down to his fingers, also a feeling of weakness and heaviness in his shoulder and arm; three months later he first found a hard lump in the left supraclavicular region. On March 29th, when he was seen first, his tumor, of hen's-egg size, was very painful to touch. Specific treatment was unsuccessful, wherefore the diagnosis lymphosarcoma was made. On May 20th removal of the growth. Union took place by first intention. The microscopical examination corroborated the diagnosis. The pain, however, disappeared for only four weeks. Three weeks after the operation a relapse could already be noticed. On July 29th the tumor was extirpated again. This time it reached as far back as the cervical vertebræ and was so much attached to the neighboring tissue that the internal jugular vein had to be ligated twice. This time union by first intention was obtained again, but the pain remained just as before and could only temporarily be stopped by morphine. On August 10th he showed symptoms of pleuritis and died three days after. The autopsy revealed pleuritis, suppurative bronchitis, and no metastasis in internal organs.

Case III.—Max W., aged eight, born in New York city; family history good. Eight weeks ago his nose became obstructed. The family physician first diagnosticated a severe catarrh.

Later on, when the symptoms became aggravated by interference with pronunciation and deglutition, he observed a swelling of the right tonsil and a protrusion of the palate. Assuming that an abscess was forming, he incised and found blood. Repeated puncture revealed the same. On November 13, 1892, when first seen by me, I found the right tonsil enlarged to nearly hen's-egg size and the soft palate pushing toward the base of the tongue. My first impression was that adenoid vegetations had reached an exorbitant extent, but closer examination taught me soon that I had to deal with a malignant growth. Four days later, after the temporary resection of the inferior maxilla, I removed the growth, which was extending up to the fossa sphenopalatina without interfering with large blood-vessels. The operation was partially performed leaving the head hanging down and only under temporary anæsthesia. After a considerable improvement I was very much disappointed to see a relapse already four weeks after the operation. Six weeks after operation dyspnœa set in, which was checked by tracheotomy. After a short period of improvement the patient died from marasmus. Autopsy declined.

Case IV.—Wenzel L., aged thirty-nine, Bohemian; family history good. Three months ago, noticing a hard lump in his pharynx and at the same time interference with deglutition, he went to a dispensary, where he was attended for chronic catarrh without relief. One month ago he, at the German Poliklinik, was examined by Dr. Freudenthal also, who, after an unsuccessful specific treatment, suspected a malignant growth. On October 10th, when first seen by me, the patient showed a very hard tumor inclosing the whole left tonsil and the neighboring portion of the palate and was extending toward the base of the skull. The growth, being of hen's-egg size, was painful; it could be felt from the outside and showed evidence of ulceration on the inside. Several submaxillary glands were swollen. The operation was preceded by tracheotomy. A Trendelenburg's tampon cannula was introduced, as profuse bleeding had to be expected. The temporary resection of the inferior maxilla was done and immediately followed by the extirpation of the

very hard fibrosarcoma, which had reached the fossa sphenopalatina. Uninterrupted recovery followed until three months later a relapse, setting in under cerebral symptoms, produced septic infiltration, which, two weeks after the new process had been noticed, ended the patient's misery.

Case I. *Carcinoma.*—Rosa F., forty years of age, born in Germany; housewife; sterile. Family history good. In February, 1890, total vaginal extirpation of the uterus for carcinoma was performed by me. She had been doing very well until afterward—on January 7, 1892, when I saw her again—she reported that she, for the last few weeks, had noticed a small lump on her neck which did not cause any pain.

On examination, I found in the supraclavicular region a hard tumor of peanut size. Mobility was perfect. Although the patient was in excellent health, my suspicion of carcinoma was very natural. But my advice to have an immediate extirpation performed was not accepted.

Three months later the tumor was of more than goose-egg size, softer, non-movable, and especially adherent to the skin, where the so-called cancer navel could be observed. As great pain had been present for the last few weeks, the patient now demanded extirpation herself.

The operation was performed successfully on April 5, 1892

Union by first intention was obtained. The condition of the patient was excellent until November, 1892, when a relapse made its appearance in the scar. Shortly after, icterus and anasarca set in, undoubtedly due to carcinoma of the liver, to which, in the course of four weeks, she succumbed. No autopsy.

Case II.—Henry W., forty-nine years of age, born in New York city. Healthy appearance. Father had died from cancer of the stomach. Since four months he suffers from a suppurating and painless tumor on the left upper trigonum. The patient declined operation and left our department.

Case III.—Caspar B., sixty years of age, born in Germany. Family history good. Patient has always been well until in December, 1891, he noticed a painless swelling under the left side of his lower jaw. He did not consult his house physician until, two months later, the slowly growing tumor became

sensitive. Poulticing was done and iodide of potassium given internally for about four weeks, when the skin above the tumor became red and soft.

A distinguished surgeon, who was called in consultation, incised and scraped, assuming that the disease was a suppurating gland.

But soon after this operation neighboring glands swelled, the pain increased, and the patient's general condition became worse. On May 7, 1892, on seeing the case first, I found a hard tumor of peanut size in the submaxillary region.

On the anterior margin of the sterno-cleido-mastoid four glands were found to be enlarged. Extirpation was done by dissecting the sterno-cleido-mastoid. The recovery was complete already three weeks after the operation, when he, having had frequent previous attacks of delirium tremens, became a maniac. Two days later he suffered an apoplectic spell, during which he died.

Case IV.—Hippolyte L., sixty-seven years of age, born in Austria. Family history good. For three months he complains about difficulty in deglutition and of a burning sensation in his pharynx. His house physician treated him with a gargle. On March 11, 1892, when first seen by me, he appeared sick and showed great debility. The inspection of the pharynx revealed a tumor which was of hen's-egg size and involved the right tonsil. The removal of the soft tumor was not very difficult and could be done without any preliminary operation. The patient was doing very well until January, 1893, when he was reported to me as having died from pneumonia.

Case V. *Carcinoma of the Larynx.*—L. M., forty-three years of age, saloon keeper, born in Germany. Family history good. Patient gives a specific history. For six months hoarseness and increasing interference with deglutition. Loss of strength and appetite. His house physician, under whose care he was for nearly fifteen years, reported that he repeatedly has suffered from laryngeal symptoms and swelling of the glands of the neck. Iodide of potassium always had given instant relief, but this time had failed to do so.

As the dyspnœa assumed a dangerous character, tracheotomy

was performed successfully by a prominent surgeon of this city, who put him under specific treatment afterward.

Temporary relief, especially improvement of the general condition, was gained, but on both sides the supraclavicular glands, extending to the lower border of the thyreoid cartilage, were enlarged to the size of a goose egg on either side.

On January 16, 1893, when first seen by me, he complained of great weakness and loss of appetite. Temperature, 100°; pulse, 98; respiration, 26. No dyspnœa. The tracheal canal was well formed. No voice, but some words could be understood. The patient was sent to St. Mark's Hospital for thorough observation. Inunctions were daily made.

A laryngoscopical examination revealed an irregular mass, broadly infiltrating and filling the laryngeal cavity. I may add that a fœtid odor was present. The whole extent of the disease, of course, could not be recognized.

On January 23d the patient became chilly and vomiting set in at the same time. Temperature, 104·4°; pulse, 100; respiration, 30. Treatment was expectant for two days.

As there was no change for the better, extirpation of the larynx was performed. After having introduced Trendelenburg's tampon cannula a longitudinal cut was made in the median line reaching from the hyoid bone to the third tracheal ring. A cross incision alongside the hyoid bone was added. After having dissected the soft tissues, they, with the periosteum, were pushed aside and by the blunt use of Cooper's scissors the whole cartilage was laid bare.

The cricothyreoid, and later on the superior laryngeal, artery could be ligated before being cut through. With a blunt hook the cartilage could then be pulled forward, and in connection with it the epiglottis was removed after having dissected the attachments to the œsophagus.

After insertion of two ligatures into the third tracheal ring, the trachea was severed.

When the operation was completed the large cavity was left open and packed with iodoform gauze; an œsophageal tube was inserted and left *in situ* for three days. The microscopica examination elicited evidence of carcinoma.

The patient's condition was excellent after the operation. For the next six days the average temperature was normal, the pulse 90, and the respiration 21.

In the place of the tampon cannula, an ordinary one was inserted the following day.

Profuse salivation was the only complaint of the patient.

The gauze was renewed twice daily.

On February 4th the gauze was found saturated with arterial blood, wherefore it was pulled out carefully. After the last piece was extracted the bleeding increased. With my index finger I was able to compress it till the head was brought into a dependent position. Now I could see the bleeding from a small branch of the cricothyreoid, from which the ligature had slipped off.

It was easily caught, and the cavity again packed with iodoform gauze. The œsophageal sound had been removed already two days ago, and was only introduced three times a day for purposes of nutrition.

On February 10th, after having been in an excellent condition (he, for instance, was able to walk around in the wards of the hospital), he suddenly became chilly and pneumonia developed. Death the following day. Autopsy showed double broncho-pneumonia. The considerable enlargement of the bronchial glands made it probable to me that, if the operation had been performed earlier, the chances of success would have been considerable.

Case VI. *Carcinoma of the Supraclavicular Gland.*—Mrs. Adelaide S. (case presented to the New York County Medical Society's stated meeting of November, 1892), aged fifty-three years, sterile, a native of Germany. Mother had died from a tumor in the abdomen.

Patient has always been well until January, 1888; she then first noticed a small lump in the right mammary gland, near the nipple.

She had first treated the lump by external application till she was advised by her house physician to undergo an operation for carcinoma.

On May 20th I amputated the whole breast, extirpating at

the same time several glands of the axilla, which, by the way, could not be distinguished through the skin before the operation.

Union took place by first intention, and the patient gained considerable in weight.

In April, 1890, when two nodules, of filbert size, were discovered in the scar, I made a second extirpation, followed by perfect recovery.

In February, 1892, six nodules, from pea to marble size, which lately had made their appearance, were extirpated.

Four months later the supraclavicular glands commenced to swell. Injections of iodoform ether and the internal use of Roncegno water seemed to stop their growing.

On October 29th, after three months of absence, she showed up again with a nodule of marble size in the middle of the scar of the mamma.

The patient's general condition was not as good as usual.

Immediate extirpation was done, and, although a great quantity of skin was removed this time again, the edges could be brought together, and, in spite of considerable tension, union took place by first intention.

No glands in the axilla were found this time.

I was astonished to find the supraclavicular glands decrease in size after this *fourth* removal.

Until now—that is, five years after the first removal—the patient has been in a fair condition.

The hardened supraclavicular glands are still enlarged, but cause no trouble.

Case VII. *Carcinoma Œsophagi.*—Philipp N., aged fifty-nine years, German, family history good. For the last year he had noticed a burning sensation while swallowing warm meals; in the last four months deglutition was interfered with also.

On January 4th, when seen first, he appeared sick. Temperature and pulse were normal. Nine inches from the front teeth a stricture was detected, which only allowed a very thin sound to pass.

Repeated sounding improved his condition temporarily, but

later on deglutition became very tedious. Patient left our department. No further report could be furnished.

Case VIII. *Œsophagectomy.*—Martha R., aged sixty-one years, widow, born in Germany. Mother died from carcinoma uteri. Among four of her children, one had died early, the other three are well. The patient had been feeling well until six months ago, when she noticed difficulty in deglutition. Two months ago a swelling on the left side of the larynx had appeared at the same time. She was only able to swallow liquid food.

A very thin sound passed a stricture six inches from the teeth.

On February 7th longitudinal incision on the posterior margin of the right sterno-cleido-mastoid was made, to which later on a cross incision toward the middle of the larynx was added.

The nervus vagus and carotis and jugularis, together with the ramus descendens of the nervus hypoglossus, could be pulled back with blunt hooks. A lead sound, previously introduced through the mouth, could not be felt, wherefore the œsophagus was incised between two forceps.

A tumor of hen's-egg size could easily be felt. After first having bluntly loosened the lower part of the growth, it, together with the œsophagus in its whole circumference, was resected with Cooper's scissors. Then it was easy to remove the upper border.

The interspace between the two œsophageal fragments amounted to an inch and a half. Sewing was abstained from. A soft catheter was left *in situ* for the purpose of nutrition. Packing with iodoform gauze. The following day the patient was very weak. Temperature, 101°; pulse, 120.

One day later fœtid odor and profuse sero-purulent discharge from the wound was noticed.

On the fourth day the patient died with the symptoms of a pleuritis on the right side. No autopsy was allowed.

Three cases of syphilitic tumors were turned over to the department of venereal diseases.

Case I. *Fibroma.*—William O., aged forty-one years, driver, for the last nine years is suffering from seventeen tumors of peanut to goose-egg size.

The growths had not been growing during the last four years, and were situated at the subauricular and supraclavicular region of both sides.

As disfiguration was the only symptom complained of, the patient, who had expected to be cured by the use of an ointment, declined an operation.

Case II. Jacob W., aged forty-one years, peddler, born in Germany. For the last three years he noticed a hard lump in the subauricular region, which now had reached the size of a goose egg. Extirpation on May 6, 1892. Union by first intention. Has recently been reported well.

Lipoma.—Three cases, all males, twenty-one, thirty, and fifty-three years of age. Two were situated in the subclavicular region, one occupied the region above the transverse processes of the fifth and fourth cervical vertebræ. Extirpation was followed by first intention.

The one lipoma, concerning a man fifty-three years of age, was considered to be a fibroma before extirpation on account of its hardness, which was caused by several thick bands of fibrous tissue, extending through the fat-flaps.

Struma.—Six cases (two colloid—struma gelatinosa—and four fibrous), two males, four females, fourteen, seventeen, thirty, forty, forty-two, and fifty-one years of age.

Four were born in Germany, two in Switzerland.

None of the strumas exceeded the size of a goose egg.

No pressure symptoms except in the case of a Swiss gentleman, fifty-one years of age, who sometimes had asthmatic paroxysms. All the cases were cured by from seven to twenty-four injections of iodoform ether. At the same time iodide of potassium was given.

All cases of struma observed by me in this country during a period of eleven years could not in the least compare with those commonly occurring in many parts of South Germany, Switzerland, and the Tyrol, this probably being due to the excellent drinking water of this country if we assume the non-parasitic nature of struma.

Angioma.—Three cases of children (one male, two females), one being one month, another three months, the third one eight-

een months old, when they underwent treatment. One, being of the size of a quarter, was situated at the right upper trigonum, the two others right above the manubrium sterni; one of those cases was of the size of a fifty-cent piece, the other one larger than a silver dollar.

While the two angeiomas named first were easily removed by the use of Paquelin's cautery, the latter, belonging to a girl eighteen months of age, on account of its contents, was first treated by puncture with the galvanic needle. As this slow process exhausted the patience, I removed the entire growth with Paquelin's cautery at one time. A very large scar was forming which was treated by massage, so that now no interference with the mobility of the muscles of the neck can be observed.

Atheroma (superficially located).—Two cases, both being single and not showing adhesions, successfully extirpated by my method described above.

Hydrocele Colli.—One patient, Martin L., fourteen months of age, has had a soft lump of peanut size on the middle of the anterior margin of the sterno-cleido-mastoid ever since birth. The family physician diagnosticated a cold abscess and advised incision on account of the presence of fluctuation, although the child was looking a picture of health. Operation, which never in a doubtful case should be omitted, revealed a serous fluid.

Iodoform ether, injected four times, effected a cure.

Meningocele Spinalis.—One patient, Anna R., two days old, was born with a tumor of hen's-egg size in the middle of the posterior neck. Healthy appearance. No paralytic symptoms; slight fluctuation. Aspiration yielded clear serous fluid. As the tumor was movable, a chasm in the corpus of the fourth cervical vertebra could be felt. Incision of the tumor on March 16, 1893, revealed a sac filled with cerebro spinal fluid and consisting of dura mater which was removed.

The edges could be united with three catgut sutures (thinnest size). Union by first intention followed. Up to date the child, with the exception of frequent vomiting, has remained well. As the communication with the spinal canal was very small, a thorough and final obliteration may be expected.

Congenital Fistula.—One patient, Rebecca R., twenty-one

years of age, born in Austria, since birth has suffered from a small opening on the anterior margin of the sterno-cleido-mastoid, about one inch above the upper border of the sternum. A thin probe introduced into the fistula touched the cornu majus of the thyreoid bone. A gelatinous fluid was discharged from the canal once in a while. Repeatedly it had closed spontaneously. After a thin galvanic needle was introduced seven times perfect occlusion was obtained.

As only six months have elapsed since, I am uncertain yet in reference to the final result.

Torticollis.—Three cases. Slight scoliosis present in all cases, which were one of seven, one of eighteen months, and one thirteen years of age; two males, one female. All the cases were operated by a free incision, this allowing a thorough separation of the thick fibers of the sterno-cleido-mastoid. Union by first intention. After-treatment by jury mast was always followed by perfect recovery.

Caries and Necrosis of Cervical Vertebræ. Case I.—Carrie N., four years of age, born in New York city. Family history good. Kyphotic for one year (history of a fall); showed an abscess on the posterior margin of the right sterno-cleido-mastoid in its middle. An incision made by the family physician brought forth two tablespoonfuls of thick pus of offensive odor. Patient's condition did not improve after this interference.

On May 29, 1892, she was seen first by me, and I could make a carefully manipulated probe touch bare bone.

A trap-door flap incision was made on the posterior margin of the sterno-cleido-mastoid. By proceeding bluntly the prevertebral space was reached, wherefrom about a tablespoonful of cheesy pus was emptied. The third and fourth transverse processes, besides the portion of the arcus, were found loose and in a necrotic state, wherefore they were extracted. The cavity was packed with iodoform gauze and plaster-of-Paris dressing applied, which embraced chest and head. A fenestra corresponding with the opening was left. Considerable improvement followed for three months, when the patient fell a victim of the *grippe*.

Case II.—Jacob R., two years of age; family history good.

Six months ago, after a short period of illness, in the left submaxillary region a tumor was forming, which was incised by the family physician. A considerable amount of pus was discharged, but the wound did not heal in spite of "a drainage-tube and the most careful antiseptic precautions."

On December 8, 1892, when first seen by me, a probe touched denuded bone. A longitudinal incision was made on the posterior border of the sterno-cleido-mastoid, and the rest of the operation done as above. The transverse process of the epistropheus, which was found diseased, was chiseled away entirely.

By open treatment, recovery followed eleven weeks later.

Immobilization was secured by the use of my modification of a Kramer's wire splint,* which extended from the eighth dorsal vertebra up to the forehead.

Case III.—Rosalia B., twenty-four years of age, born in Russia, housewife. Mother of two healthy children. Family history good. Eight months ago, in the middle of the right neck, she noticed a painful swelling which, after four weeks' standing, had been incised by the family physician. The after-treatment consisted in various kinds of poultices. Patient lost twenty-seven pounds. The slightest motion of the spinal column caused severe pain.

On January 18, 1892, when first seen, a fistula was noticed behind the cornu majus of the hyoid bone. A carefully manipulated probe at last touched denuded bone.

A T-shaped incision (longitudinally on the posterior margin of the sterno-cleido-mastoid) was made. The rest of the operation was done as mentioned above. A necrotic bone fragment of the size of a filbert, slightly attached to the arcus of the fifth cervical vertebra, could easily be removed. Open treatment. Perfect union after three months. (Four weeks ago the patient was confined with a healthy child.)

Retropharyngeal Abscess (three cases).—In this connection I may state that as early as May 18, 1886, Dr. Max Bracker and myself made use of external incision in a child, eighteen months of age, suffering from retropharyngeal abscess, as we

* See New York *Medicinische Monatsschrift*, January, 1893.

regarded it impossible to use antiseptic treatment after having made an internal incision. Later on I made it a habit to add a counter-incision on the other side of the neck, introducing my finger into the mouth and incising on its tip at the posterior margin of the opposite sterno-cleido-mastoid.

I then introduced a drainage-tube, surrounded by fifty-per-cent. iodoform gauze, right through for the next few days, thus surely avoiding retention of pus.

Case I.—Charles H., four years of age, born in New York city; family history good. On May 10, 1892, I was called by a prominent physician to perform tracheotomy for croup. The little patient had been suffering from chronic catarrh of the nose, and since the last seven weeks he could not breathe through the nasal passages at all. Since five days the symptoms of dyspnœa and hoarseness had gradually commenced. When I came, the little patient was found to have dyspnœa; at the same time slight snoring indicated that nasal breathing was interfered with.

There was only a very slight swelling on both sides of the neck, which was not painful by pressure; a few glands of the average size of a pea present. The pharynx showed a nearly normal condition; palpation of the same could detect no fluctuation. But the swelling led me to suspect a deep-seated abscess being the cause of pressure upon the larynx. I therefore insisted upon making an external incision before tracheotomy could come into question.

And, actually, on making an incision on the posterior edge of the sterno-cleido-mastoid, as in œsophagotomy, I detected about one tablespoonful of creamy pus on a level with the fifth vertebra. A slight but sufficient relief was afforded immediately, and uninterrupted recovery (lasting six weeks) followed.

Case II.—Bella N., two years of age, born in New York city; family history good. Nasal catarrh since many months; for the last two days snoring and difficulty in respiration and deglutition.

On March 1, 1892, first seen by me. The child appeared cyanotic; expression of face very anxious. Mouth wide open. Respiration, snoring and snuffling. The whole neck appeare-

to be stiff. In the right submaxillary region a tumor of goose-egg size. Inspection of the pharynx shows a small tumor which pushed the posterior pharyngeal wall forward. Touch by the index finger revealed fluctuation. Immediate incision and contra-incision under chloroform brought instant relief.

Perfect recovery was obtained four weeks afterward.

Case III.—Moritz P., eleven months of age, born in New York city; family history good. Nasal catarrh since the time of his birth. For the last six days perfect obstruction of the nose and the peculiar sound produced by breathing through the mouth only. Since two days, difficulty in deglutition and impossibility of nursing.

On July 27th, when first under observation, the very anæmic child was restless and had his mouth wide open. Snoring could be heard before the sick room was entered.

In the left submaxillary region a hard tumor of hen's-egg size could be noticed. The pharyngeal space was nearly filled up by a tumor of the same size. Fluctuation well marked on the pharyngeal walls. Immediate incisions on both sides under anæsthesia brought relief at once. Recovery perfect after four weeks.

Angina Ludovici.—Fred A., forty years of age; born in Germany; family history good. Has never been sick until two days ago he suddenly became chilly, and shortly after noticed a sharp pain in his pharynx. The family physician diagnosticated tonsillitis. The next day his symptoms became aggravated; a hard, submental swelling appeared.

On December 20, 1892, when first seen, he gave the appearance of a septic patient. Temperature, 102°; pulse, 125. In the submental region and in the right submaxillary region a swelling of goose-egg size could be noticed.

Slight dyspnœa and very marked dysphagia were present. The posterior wall of the pharynx protruded forward. A longitudinal incision on the posterior margin of the sterno-cleido-mastoid, to which a cross-incision alongside the inferior margin of the lower jaw was added, discharged a teaspoonful of seropurulent fluid and some necrotic tissue. Uninterrupted recovery followed quickly.

Spondylitis (nine cases—six in males, three in females).—Two were born in Germany, three in Austria, one in Russia, and three in New York city; four were under three, three between three and thirteen, and two above this age. In four cases the family history was good, five had repeatedly suffered from bronchitis, pneumonia, and enteritic attacks. All of them were treated with the jury mast locally, while internally the same principles as described for tuberculosis were employed. Four patients are well; five have considerably improved and are still under treatment.

Partial Dislocation (diastasis of the vertebræ), two cases.

Case I.—George N., brewer, aged forty-three, born in Germany, a healthy man, one week ago fell from a beer truck and at the same time a heavy beer barrel struck his neck. He was unconscious for two hours; then his only complaint was a stiffness in his neck and both shoulders and a sharp pain alongside the cervical column. Both arms could only be lifted to a limited degree. The sensibility was interfered with nowhere. Difficulty in deglutition and pronunciation. No mobility of the spinal column. On June 23, 1892, I found that the spinous process of the fourth cervical vertebra showed considerable projection; the one of the third was sunk in. The index finger, introduced into the pharynx, felt the third vertebra protruded, while the fourth one appeared to be pushed back. The recumbent position and permanent extension for at least ten weeks in Glisson's cradle was advised, but the patient did not show up again.

Diastasis of Fifth Cervical Vertebra (New York *Med. Monatsschrift*, May, 1892).—John T., aged twenty-six, of tall stature, born in New York city. Specific history: Seven weeks ago while carrying stones he fell off a step-ladder and was unconscious for several minutes. A marked disfiguration on his neck was noticed by his comrades at once. The neck was entirely stiff and very painful, just as well as the upper dorsal region. No paralytic symptoms were present.

On February 8, 1892, when first seen by me, he looked like a kyphotic patient. Only with the use of an immobilizing collar was he able to sit or stand up. No mobility. No interference

with sensibility. Slight disturbance of deglutition. Voice weak and hoarse. A protuberance very sensitive to the touch, of nearly the size of a man's fist, extended from the second dorsal up to the third cervical vertebra. It was impossible at this period to discover the particular vertebræ participating in the swelling. On inspection of the pharynx, a curvature of the spinal column could be noticed. On palpation, it was found that the sixth cervical vertebra was protruding, while the fifth was lying far back. A laryngoscopical examination by Dr. Freudenthal was almost impossible, as the projection nearly overlapped the epiglottis.

After a treatment with Glisson's cradle for three months, combined with inunction of blue ointment, recovery was obtained so that the protuberance in the pharynx has entirely disappeared. On the outside still, one year after the accident, an elevation of peanut size could be noticed. There was no more trouble, however. It is questionable to what extent the luetic condition had added to the original swelling, the vitality of the tissues having perhaps thus been impaired.

In reference to *enlarged tonsils* (nine cases) it may be stated that extirpation was always performed with the blunt-pointed knife, as by pulling the tonsil forward with Muzeux's forceps much more could be exsected from the hypertrophied organ.

Disfiguring and Deforming Scar, caused by a Burn.—Jacob W., aged three, born in New York, on April 30, 1892, had been burned over the whole right side of his neck, the burns being of the third degree. Healing was completed three months later, but the cicatricial tissue had become so hardened that contraction took place, causing the chin to approach the sternum. Glisson's cradle applied for six months had improved the position of the head so much that by the use of an immobilizing collar the neck could be kept up straight.

Foreign Bodies in the Œsophagus. Case I.—Deborah L., aged eighteen months, born in Russia (see New York *Med. Monatsschrift*, April, 1892), while playing had swallowed a quarter of a dollar piece. Physicians had at once tried to produce emesis and afterward to extract it, but without any effect. The little patient, however, was able to swallow liquid food,

but lately she vomited repeatedly. When I heard the parents' report, four weeks after the accident had happened, it seemed to me hardly credible. I could not understand how a piece of such a size could pass the œsophagus of a child of her age, nor that the condition could continue without developing more alarming symptoms. Therefore I had the impression that the patient, who was not looking bad at all, was more the victim of forcible medical and surgical interference than of anything else. More as a matter of duty, therefore, than in the expectation to find the foreign body, I introduced my coin-catcher. After first having touched the walls of the pharynx without noticing anything abnormal, I passed the isthmus. There I met with a resistance. Instinctively I turned the sound, made a slight traction, and indeed felt it yielding. After this, resistance was experienced again and further traction was impossible. So I introduced my index finger far into the pharynx, where, to my great surprise and joy, I could feel the coin and extracted it. Perfect recovery followed. The appearance of the coin had somewhat changed. On some portions, probably where it was lying free, it looked polished; on some other portions, where it had been impacted in the mucous membrane, a crust of dried up secretions covered its surface.

Case II.—Willy N., aged eleven months, born in New York city (see *Medical Record*, January 21, 1893, p. 89). Two days ago, while playing, he had swallowed a so-called campaign button, being of the size of a penny. Various means were resorted to to fish it up or to push it down by several colleagues, but they did not avail. On December 17, 1892, when I first saw the child, I performed œsophagotomy. The button was found on a level with the upper border of the first rib, where, on account of its sharp edges, it had perforated the œsophagus toward the trachea, on which it had exerted pressure. The incision had been made alongside the left anterior margin of the sterno-cleido-mastoid. The wound was only partially closed and the remainder left open and packed with iodoform gauze. As the operation could be done quickly and without considerable injury or loss of blood, I had hopes for the patient; but he died the next day from broncho-pneumonia.

This case illustrates the great danger of delaying œsophagotomy after extraction or pushing down had been tried in vain.

In conclusion, I like to state that I am very much indebted to Dr. F. Haendel, Dr. A. H. Stiebeling, and Dr. A. Haymann for taking the records of the cases reported above.

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